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observers assign to it the large proper motion of $+0^s.050$ in right ascension and $-0''.36$ in declination, which amounts to $0''.64$ in the direction of 124°.4. Obviously this is common to the two components. The system is probably one of the nearer stars and should have a measurable parallax. Its position for 1900.0 is $2^h\ 44^m\ 54^s$, $+\ 45°\ 35'$.

Three other stars of which I have as yet secured only one set of measures at the present epoch deserve mention. They are:

A351.

1902.48	65°.4	0″.55	4^n
1910.31	75 .8	0 .38	2
1916.58	220 .3	0 .19	1

The magnitudes are 9.5 and 9.9. The change in 1916 was so great that I checked the micrometer readings and the star's identification with special care and I am confident that the measure as given is free from mistake.

A519, magnitudes 8.8 and 9.0.

1903.04	273°.2	0″.39	3^n
1916.20	360 .±	0 .10	1

The pair was too close for accurate measure and the quadrant indeterminate. As in the case of A351, the identification of the star was carefully checked.

A1535, magnitudes 8.8 and 8.8.

1907.69	34°.1	0″.48	3^n
1916.79	63 .4	0 .35	1

Many other pairs have shown a change in angle of from 5° to 10° in the period from discovery to 1916.

One of the stars mentioned in my former note is A494, for which my measures in 1915 showed an apparent increase of angle amounting to 157°.8 in the twelve years since its discovery. The measures secured this year confirm this rapid motion, the angle having advanced 14°.6 in 1.06 years. There is little or no change in the apparent distance, which is about $0''.15$.

Robert G. Aitken.

Professor Keeler's Photographs of Nebulæ.

A limited number of copies of Volume VIII, *Publications of the Lick Observatory* (Professor Keeler's photographs of nebulæ and clusters made with the Crossley reflecting telescope), are available for distribution to astronomers, students of astronomy, observatories, university and college libraries, and other libraries of high character, upon payment of the mailing charges. The volume wrapped for mailing weighs five pounds and will cost sixty cents to send to points east of Chicago, to Canada, and to such foreign countries as have parcel post interchange with the United States. The rates for points west of Chicago may be ascertained from the local postmaster. Money order or stamps for transportation charges should accompany the request.

W. W. Campbell,
Director, Lick Observatory.

Note on Barnard's Large Proper-Motion Star.

Two photographs of the spectrum of this star were obtained in June with the 60-inch reflector and the Cassegrain spectrograph. A camera of 7 inches focal length was used in conjunction with the 64° prism regularly employed in the instrument. The first of the two plates was considerably underexposed, but the second with an exposure time of five hours is of very fair quality.

The spectrum of the star is Mb with the peculiarities characteristic of the "dwarf" stars of this type. It is, in fact, nearly identical with that of Groombridge 34, Krüger 60, and several other stars of large proper motion and parallax. The line $\lambda4454$ of calcium used in determinations of absolute magnitude is very strong, and this is also the case with the neighboring calcium line at $\lambda4435$ and the titanium group at $\lambda4535$. The absolute magnitude of the star of the basis of the calcium line is about 11.0 or 11.5. The apparent magnitude is still somewhat uncertain: if we assume the value 10.0 the parallax of the star would be about $+0''.2$. It will be of exceptional interest to compare this value with the results of parallax observers, since a considerably larger measured parallax would indicate the existence of stars of this type with a luminosity much lower than any yet known to exist.

The radial velocity of the star was determined from both photographs, the stronger iron lines and those of calcium